TWO NEW SPECIES OF WATER MITES FROM OHIO[1, 2]

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ABSTRACT

Two new species of Hydracarina, *Tiphys weaveri* (Acarina: Pionidae) and *Axonopsis ohioensis* (Acarina: Axonopsidae), are described from Wayne County, Ohio. The former species inhabits temporary ponds; the latter was collected in a newly formed lake.

A survey of the water mite fauna of north-central Ohio has been carried out by Dr. Andrew A. Weaver of the Department of Biology, The College of Wooster. The results of his work will appear later in this journal. The present paper describes two new species collected by Dr. Weaver during this survey. The primary types will be deposited in the Field Museum of Natural History (=Chicago Natural History Museum).

TIPHYS (S. S.) WEAVERI, sp. n.

(fig. 1–5)

In presenting measurements for this species, those of the holotype male and allotype female are given first. The known range of size variation in the paratype material is given in parentheses following the measurements of the primary types.

Male: Length between anterior end of capitulum and posterior end of the genital field 692 μ (677 μ–692 μ); coxae occupying most of the ventral side; first coxal groups separated medially, third coxae slightly separated medially, fourth coxae fused medially; suture lines between third and fourth coxae complete; epimeroglandularia 1 lying free in the soft integument between the second and third coxae; a small, somewhat V-shaped ridge present on the posteromedial portion of the fourth coxae, this ridge bearing a single pair of small setae (fig. 4); genital bay well developed, nearly enclosing the genital field; three pairs of genital acetabula, the most posterior pair of which are much larger than the others; posterior pair of acetabula 69 μ (66 μ–76 μ) in diameter; pregenital sclerite very small and separated from the acetabular plates; a pair of small setae located in the soft integument between the pregenital sclerite and the acetabular plates; structure of the genital field illustrated by figure 4; dorsum soft, bearing a pair of small muscle attachment platelets.

Dorsal lengths of the palpal segments: P–I, 43 μ (41 μ–43 μ); P–II, 112 μ (112 μ–115 μ); P–III, 55 μ (53 μ–57 μ); P–IV, including terminal seta, 152 μ (152 μ–156 μ); P–V, 62 μ (62 μ–65 μ); structure of palp similar to that illustrated and described for female; capitulum including anchoral apodemes 182 μ (182 μ–197 μ) in length; chelicera 197 μ (197 μ–198 μ) in length; dorsal lengths of the distal segments of the first leg: I–Leg–4, 206 μ (206 μ–213 μ); I–Leg–5, 227 μ 226 μ–228 μ); I–Leg–6, 304 μ (304 μ–318 μ); dorsal lengths of the distal segments of the third leg: III–Leg–4, 128 μ (128 μ–133 μ); III–Leg–5, 176 μ (170 μ–183 μ); III–Leg–6, 145 μ (145 μ–152 μ); segments of third leg expanded, III–Leg–4 and 5 with a few very long swimming hairs; dorsal lengths of the segments of the fourth leg: IV–Leg–1, 145 μ (145 μ–152 μ); IV–Leg–2, 117 μ (102 μ–117 μ); IV–Leg–3, 114 μ (102 μ–114 μ); IV–Leg–4, 243 μ (243 μ–258 μ); IV–Leg–5, 254 μ (254 μ–265 μ); IV–Leg–6, 202 μ (202 μ–214 μ); figure 1 illustrates the proportions and chaetotaxy of the fourth leg; dorsal setae on IV–Leg–4 enlarged; anterior setae on dorsal side of IV–Leg–4 greatly increased in width distally, these setae downwardly curved at tips; posterior setae on dorsal side of IV–Leg–4 broad at bases but gradually narrowing towards distal ends of the setae; swimming hairs on IV–Leg–6 over twice length of segment; extreme proximal portions of the distal segments of all legs much lighter colored than the remainder of the segments.

Female: Length of body approximately 942 μ (915 μ–1018 μ); length between anterior end

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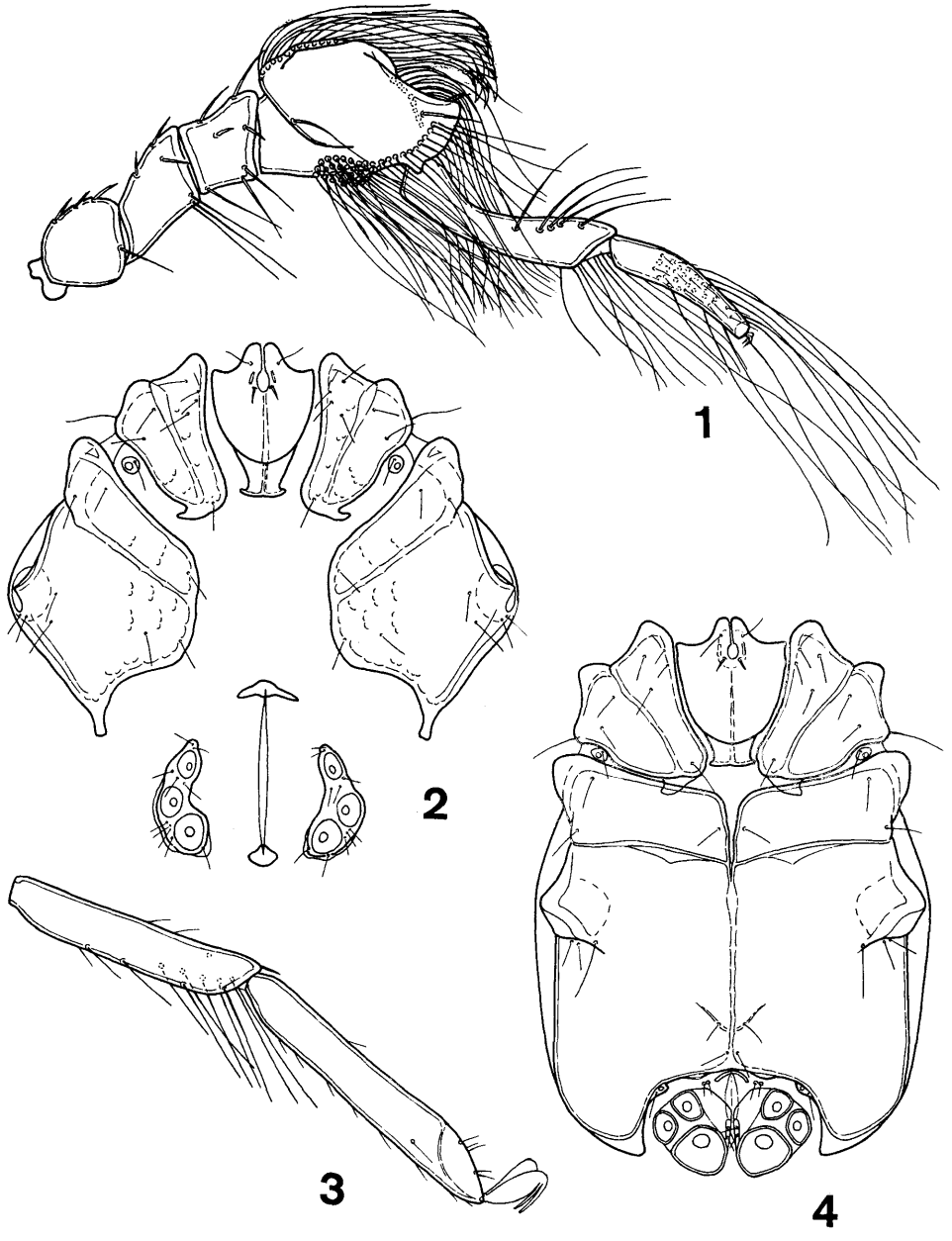
of capitulum and posterior end of fourth coxae 486 μ (486 μ–562 μ); coxal groups separated; epimeroglandularia 1 lying free in the integument between the second and third coxae; fourth coxae with well developed posterior apodemes; suture lines between third and fourth coxae complete; distance between pre- and postgenital sclerites 228 μ (228 μ–256 μ); three pairs of genital acetabula, the posterior pair being the largest; the individual acetabular plates 138 μ



Tiphys weaveri—Fig. 1, fourth leg, male; Fig. 2, ventral view, female; Fig. 3, I-Leg-5 and 6, female; Fig. 4, ventral view, male.

(138 μ–172 μ) in length, 59 μ (58 μ–61 μ) in width; figure 2 illustrates the ventral sclerites of the female; dorsum soft, bearing a pair of small muscle attachment platelets.

Dorsal lengths of the palpal segments: P-I, 43 μ (43 μ–48 μ); P-II, 110 μ (110 μ–124 μ); P-III, 55 μ (55 μ–58 μ); P-IV, including terminal seta, 152 μ (152 μ–166 μ); P-V, 66 μ (65 μ–72 μ); P-III bearing a heavy terminal seta; distal end of P-IV extending distally, ending in a long, very heavy seta; length of this heavy seta at distal end of P-IV, 45 μ (41 μ–45 μ); tip of seta at end of P-IV extending distally nearly as far as tip of P-V (fig. 5); capitulum including anchoral apodemes 182 μ (182 μ–197 μ) in length; chelicera 197 μ (197 μ–220 μ) in length; dorsal lengths of the distal segments of the first leg: I-Leg-4, 197 μ (194 μ–208 μ); I-Leg-5, 228 μ (217 μ–228 μ); I-Leg-6, 251 μ (251 μ–258 μ); figure 3 illustrates the proportions and chaetotaxy of I-Leg-5 and 6; all legs with swimming hairs, but becoming more numerous on posterior appendages; leg color as described for male.

Holotype: Adult male, collected in a temporary woodland pond near New Pittsburg, Wayne County, Ohio (T20N/R14W/S29), on March 25, 1964.

Allotype: Adult female, same data as holotype.

Paratypes: 3 males, 16 females, same data as holotype; 2 females, same area as holotype on April 9, 1964; 2 females, same area as holotype on April 17, 1964; 2 females, taken in flood pools near Shreve, Wayne County, Ohio (T14N/R13W/S18), on April 19, 1964.

Habitat: Temporary ponds.

DISCUSSION

The distodorsal projection of P–IV, ending with a greatly enlarged seta (fig. 5), is diagnostic for both sexes of *T. weaveri.* A well developed seta at the distal end of P–IV is found in all members of the genus *Tiphys*, but other species lack the dorsal extension of the segment and the associated heavy seta is smaller.

The enlarged setae on the dorsal side of IV–Leg–4 in the male are usual, but are also found in the Holarctic species, *Tiphys scaurus* (Koenike). These dorsal setae are so transparent (in both *scaurus* and *weaveri*) that an observer usually sees only the edges, and these appear as two hair-like setae. Besseling (1964) was the first worker to interpret and illustrate these dorsal setae in *T. scaurus* correctly. The illustrations of the male fourth leg of *T. scaurus* by Cook (1956) and of all European authors previous to Besseling are in error.

AXONOPSIS (BRACHYPODOPSIS) OHIOENSIS, sp. n.

(fig. 6–9)

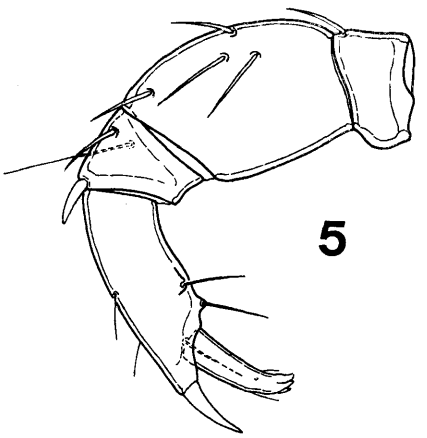
Male: Dorsal and ventral shields present, these very lightly fused at anterior end; dorsal shield oval, truncate at anterior end; dorsal shield 425 μ in length, 334 μ in width; dorsum without a color pattern and without prominent ridges; eyes somewhat reduced in size; figure 9 illustrates the arrangement of the glandularia of the dorsal shield; dorsal setae small and inconspicuous, possibly some of the more posterior setae either absent or lost during slide making; excretory pore located at extreme posterior end of dorsum; ventral shield, including first coxae, 426 μ in length, 388 μ in width; ventral shield oval, truncate at anterior end; lateral margins of ventral shield rounded and nearly smooth; first and second coxae broad, not recurved at tips; capitular bay 109 μ in length; two pairs of glandularia located between the genital field and insertions of the fourth legs, these very close together on their respective sides (fig. 6); a short ridge present on each side extending posteriorly from the region of insertions of the fourth legs; four pairs of genital acetabula; first, second and fourth acetabula arranged more or less in an arc, the third pair located considerably lateral to the other pairs; figure 8 shows a posterior view of the male genital field illustrating the arrangement of the acetabula; width between outer margins of the most lateral acetabula 169 μ; gonopore relatively long and narrow, 10 μ in width; gonopore flanked by a row of small setae, other setae scattered more laterally on the genital field.

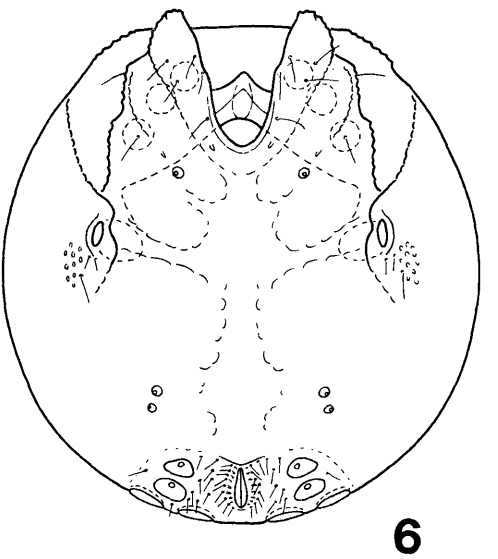
Dorsal lengths of the palpal segments: P-I, 37 μ; P-II, 55 μ; P-III, 31 μ; P-IV, 72 μ; P-V, 28 μ; P-IV only very slightly expanded near middle; figure 7 shows the proportions and chaetotaxy of the palp; capitulum 111 μ in length; distal segments of first leg destroyed during slide-

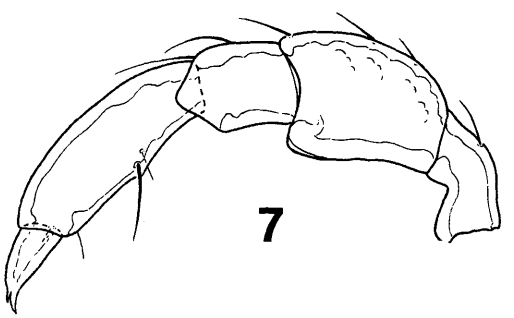
making so measurements cannot be given; dorsal lengths of the distal segments of the fourth leg: IV–Leg–4, 86 μ; IV–Leg–5, 107 μ; IV–Leg–6, 109 μ; IV–Leg–4 with two, IV–Leg–5 with three swimming hairs.

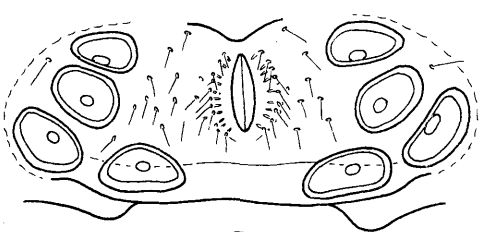
Female: Unknown.

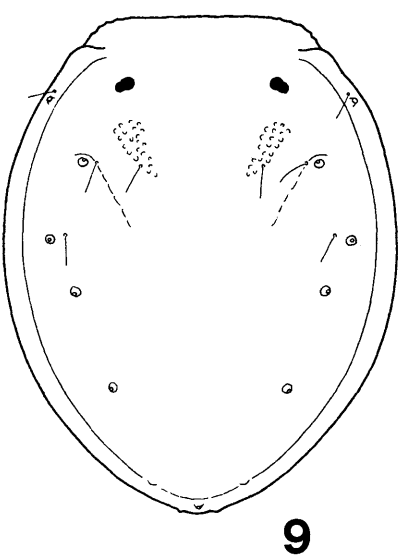
Holotype: Adult male, collected in Shreve Lake, Wayne County, Ohio (T18N/R14W/S15), on November 30, 1962.











Tiphys weaveri—Fig. 5, palp, female.
Axonopsis ohioensis—Fig. 6, ventral shield, male; Fig. 7, palp, male; Fig. 8, posterior view of genital field, male; Fig. 9, dorsal shield, male.

Habitat: The type locality of this species is a lake recently formed by damming a spring-fed stream. It is quite possible that this is primarily a stream-inhabiting species which occasionally invades or is swept into the lake.

DISCUSSION

Cook (1967) revised the genus *Axonopsis*, and resurrected the name *Brachypodopsis* Piersig. As defined by Cook, the subgenus *Brachypodopsis* contains those species of *Axonopsis* with either three or four pairs of genital acetabula, but in which the coxae are broad and not hook-like, sexual dimorphism of the legs is lacking, and plate-like glandularia do not occur in the integument between the posterior portions of the dorsal and ventral shields. Under the older subgeneric classification, the present species would have been placed in *Axonopsis s. s.*

The unusual arrangement of the four pairs of genital acetabula, with the third pair located lateral to the other three pairs, and the absence of a dorsal color pattern will easily distinguish the present species from all known members of its subgenus.

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